



An evaluation of the progress in reducing heat-related human mortality in major U.S. cities

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Abstract:

This study estimates the excess mortality attributable to excessive heat events (EHEs) for forty major U.S. cities during 1975-1995 and 1975-2004. We calculate these results using the spatial synoptic classification method to identify EHE days. Step-wise regressions are then used to estimate the location-specific mortality algorithms that can account for the impact of the EHEs' duration, severity, and timing. Our excess mortality results are expressed both as lives lost and associated mortality rates (excess deaths per 100,000 residents) using 2000 Census population estimates. Our results generally show a reduction in EHE-attributable mortality rates since 1996. Adjusting our results to account for changes in the average number of EHE days per year in each period does not affect this general conclusion. However, this adjustment has a considerable impact on a measure of the cities' relative performance in terms of reducing this EHE-attributable excess mortality. Our results indicate there is promise for further reductions in EHE-attributable mortality from the approximately 1300 excess deaths per summer we identify using data from the 1975-2004 period. However, the magnitude of this result highlights the significant health burden of EHEs relative to other extreme weather events in the United States and suggests it is worthy of additional attention. Our results also raise important questions with respect to evaluating the performance of EHE notification and response programs and how EHE-attributable mortality should be estimated for future scenarios, notably for climate change projections.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Meteorological Factors, Meteorological Factors, Temperature, Other Exposure

Temperature: Extreme Heat

Other Exposure: dew point; cloud cover

Geographic Feature:

resource focuses on specific type of geography

Urban

Climate Change and Human Health Literature Portal

Geographic Location:

resource focuses on specific location

United States

Health Impact:

specification of health effect or disease related to climate change exposure

Injury, Other Health Impact

Other Health Impact: heat related mortality

Resource Type:

format or standard characteristic of resource

Research Article

Timescale:

time period studied

Time Scale Unspecified